

Numerical Modeling in Geomechanics (CIEE 714 / IMSC 015)

Semester Syllabus

Part 1: Course Information

Instructor Information

Instructor: Dr. Zhou Wanhuan, Hannah
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Course Description

This course introduces constitutive models of soils and numerical modeling in geotechnical engineering. Soil constitutive models, such as Linear Elastic, Elasto-Plastic, and Cam-Clay models are discussed. Basic background of the finite element (FE) technique is briefly introduced with emphasis on geotechnical applications. A finite element commercial program (SIGMA/W) is introduced to students to analyze geotechnical problems. The course aims to provide students essential knowledge on soil behavior, numerical modeling, and their applications in geotechnical engineering.

Prerequisite

None

Course Duration

42 contact hours, 3 hours per week (3-credit course)

Credit: 3

Compulsory/elective course: Elective

Part 2: Course Objectives

5. Students have a general idea for constitutive models of soils.
6. Students understand the concepts of yielding and plasticity.
7. Students understand Cam-Clay model and its basic assumptions
8. Students are able to use finite element software Sigma/W for soil modeling.

Part 3: Major Assessment Methods

Assignments and lab report:	50%
Presentation:	20%
Written exam:	30%